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FACILITATION-REFLEXIC METHODOLOGY OF ENERGY CONTROL MANAGEMENT ON ENTERPRISE

ФАСИЛІТАЦІЙНО-РЕФЛЕКСІЙНА МЕТОДОЛОГІЯ УПРАВЛІННЯ ЕНЕРГОЗБЕРЕЖЕННЯ НА ПІДПРИЄМСТВІ

The article is based on the interdisciplinary approach, which is based on the symbiosis of facilitation, reflection and imperatives: synergistic; interdisciplinary equivalence; complementing N. Bohr's facilitation and reflection methodology of energy saving management at the enterprise, taking into account logical and methodological problems when implementing energy-efficient measures, as well as specificity of personnel motivation. It is proposed to incorporate the facilitation and reflexive methodology into the management of construction enterprises, in particular, in motivation of personnel for energy saving. The scheme of implementation of the economic and managerial mechanism of motivation of personnel for energy saving at the enterprise is presented, which will enable to implement energy-efficient technologies with the production-economic system taking into account the specifics of personnel motivation. Its structuring is presented, which is represented by the functions of subjects and subjective-object interrelations, the allocation of subsystems of instrumental, formalized scientific and empirical, information management change, strategic and tactical management, as well as 8 blocks. The proposed components of the scheme, implementing the system-complex approach to the organization of the process of motivation to energy conservation ensure the achievement of intermediate goals, positively characterizes the degree of performance of the task to increase the level of energy efficiency of the enterprise, its invariant development, increase the level of efficiency of energy conservation measures; reduction of the energy intensity of the manufactured products. The scheme of realization of the economic and managerial mechanism of motivation of the personnel for energy saving at the enterprise is characterized by a set of facilitation methods for managing personnel motivation processes for energy saving, which is realized on the basis of the block of "Facilitation and reflexive methodology" and "reflexive management". Implementation of strategic and tactical management is provided by the block "regulation of the process of motivation to energy saving", and "goal-setting". Information-analytical interaction of structural components of the mechanism, which creates conditions for realizing the potential and motivation of personnel for energy saving with the help of a block of "coherent-cohesive interaction", "integrated collection, processing and analysis of data on the current state of implementing energy-saving measures at the enterprise" and "change management"»

Key words: «Methodology of Facilitation», reflexive management, motivation, energy saving, enterprise.

У статті розроблено на основі інтердисциплінарного підходу, який базується на симбіозі фасилітації, рефлексії та імперативів: синергетичного; інтердисциплінарного; рівноцінності; доповнюваності Н. Бора фасилітаційно-рефлексійну методологію управління енергозбереженням на підприємстві, що враховує логіко-методологічні проблеми при впровадженні енергоефективних заходів, а також специфіку мотивації персоналу. Запропоновано інкорпоровувати фасилітаційно-рефлексивну методологію в управління

будівельними підприємствами, зокрема в процесі мотивації персоналу до енергозбереження. Представлено схему реалізації економіко-управлінського механізму мотивації персоналу до енергозбереження на підприємстві, що надасть можливість впроваджувати енергоефективні технології виробничо-економічною системою з урахуванням специфіки мотивації персоналу. Проведено її структуризацію, яку представлено функціями суб'єктів і суб'єктно-об'єктних взаємозв'язків, виділенням підсистем інструментальної, формалізовано науково-емпіричної, інформатизації управління змінами, стратегічного та тактичного управління, а також 8 блоками. Запропоновані компоненти схеми, реалізують системно-комплексний підхід до організації процесу мотивації до енергозбереження забезпечують досягнення проміжних цілей, позитивно характеризує ступінь виконання завдання щодо підвищення рівня енергоефективності підприємства, його інвайроментального розвитку, зростання рівня ефективності заходів енергозбереження; зменшення енергомісткості виготовленої продукції. Схема реалізації економіко-управлінського механізму мотивації персоналу до енергозбереження на підприємстві характеризується сукупністю фасилітаційних методів управління процесів мотивації персоналу до енергозбереження, що реалізується на основі блоку «Фасилітаційно-рефлексивної методології» та «рефлексивного управління». Реалізацію стратегічного та тактичного управління забезпечує блок «регламентація процесу мотивації до енергозбереження», та «цілепокладання». Інформаційно-аналітичну взаємодію структурних компонент механізму, що створює умови для реалізації потенціалу та мотивації персоналу до енергозбереження за допомогою блоку «когерентно-когезійної взаємодії», «комплексного збору, обробки та аналізу даних про поточний стан реалізації енергозберігаючих заходів на підприємстві» та «управління змінами».

Ключові слова: «Metodology of Facilitation», рефлексивне управління, мотивація, енергозбереження, підприємство.

Introduction. Given the high energy dependence of the economy, there is a need to use the latest approaches to energy efficiency management, both at the state level and at enterprises, in particular. In the developed world using the latest energy saving and management methodology of work with personnel, such as «Metodology of Facilitation», reflection, but in Ukraine, this process is not yet sufficient interest. The aforementioned issues, actualizes the study of the possibility of forming a facilitative-reflexive methodology in the management of construction enterprises, in particular, in the process of motivation of personnel to energy conservation.

The question of the formation of a motivational mechanism, corresponding to the realities of the development of a market economy in Ukraine, is being studied by a number of leading Ukrainian scientists: D. M.Ovcharenko, O.M. Malichina, G. M.Ryzhakova [2; 4-5]. Developers facilitation methodology as a special process that increases the efficiency of large groups, include North American and Australian scientists: J. Bence, M. Vaysbord, R. Schwartz, F. Emery [7-9].

Setting objectives. The purpose of this article is to study the theoretical positions «Metodology of Facilitation», reflexive management and development of the facilitation and reflexive methodology of energy saving management at the enterprise.

Methodology. Theoretical-empirical basis of the research were the methods of scientific knowledge, general scientific principles, work experience in the field of energy conservation management of enterprises. The following scientific methods

have been used to solve the tasks: theoretical generalization, comparison, Appreciative Inquiry, Search Conferences, Open Space Technology, Technology of Participation, and the conceptual provisions of the «Methodology of Facilitation», reflexive management.

Research results. Acceptance of the close relationship of the newest methodological principles laid down in the basis of the integration of reflection and facilitation in the context of logical and methodological problems of energy saving management at the enterprise, in particular motivation of the personnel, due to the availability of effective methods, techniques, algorithms for achieving the set goals of implementing energy efficiency improvement projects on the basis of facilitative - reflection methodology. A conceptual basis for transformations in the proposed scientific synergy of reflection and facilitation will be nonlinear thinking, commensurate with their main imperatives, which reflect the essence of the new management paradigm and its manifestation in the value sphere of science.

The integration of facilitation and reflection is carried out on the basis of methodological pluralism and dialogue of thoughts, which are manifested in the integrated approach to solving the logical and methodological issues of energy saving management at the enterprise, in particular, the motivation of staff, complementarity of research methods, co-operation of scientific disciplines. The proposed integration of reflection and facilitation in the economy is an analysis of its characteristics and perspectives, justification of postulates, revealing of mechanisms and algorithms for their realization, forecasting of possible consequences. The quintessence of the modern paradigm of energy conservation is based on openness, diversity, expansion of capacities, and opposition to the limitations and bias of existing patterns.

On the basis of the interdisciplinary approach, which is based on the symbiosis of facilitation and reflection, we offer imperatives that can serve as the basis for their integration into a single whole:

- 1) a synergistic imperative, which includes categories of system, nonlinearity, variability, complexity, coherence;
- 2) interdisciplinary synthesis - the manifestation of coevolution, the symbiosis of different disciplines in solving the logical and methodological problems of energy saving management at the enterprise, in particular motivation of the personnel;
- 3) Equivalence, significance as a whole, and its parts;
- 4) the imperative of completeness N. Bohr.

An interdisciplinary approach provides an opportunity to reveal the internal potential of sciences, completing the economic and scientific knowledge and enriching the facilitation and reflection methodology. Reflexive management is used in cases where it is expedient to influence other subjects: their vision of the situation, their actions, their decision-making process, and reflexive processes are manifested in the greatest way not only in conflict situations and rivalry, but also in cooperation and partnership [4]. The above-mentioned trends determine the use of reflection in solving the problems of motivation to save energy in the context of the growth of energy efficiency of the enterprise.

We interpret «facilitation» through the prism of process and result. In terms of the process, it is the development, management of the structure of processes that help the group to effectively and coordinate its work, minimizing the common problems faced by working together. «Metodology of Facilitation» accepts attention on the following issues: what goals should be achieved; who should be involved in solving the problem; development of the process involving the group, and the sequence of tasks; effective communication; achieve the appropriate level of participation and use of resources; competence and ability of participants [9].

The main objective of the facilitation is to increase the level of efficiency of the company's employees. From the point of view of the result - it is the help of the personnel of the company in order to achieve the best indicators of its activities: to improve the quality and responsibility of the decisions taken; to significantly reduce the time of implementation of managerial decisions; improve team relations; to facilitate organizational learning [8]. In order to increase the level of efficiency of motivation for energy saving it is expedient to take the experience of advanced countries and apply the latest methodologies of motivation and stimulation of work, such as the reflection and the idea of facilitation in management.

O. M. Malikhina under the systemic motivation of human capital of construction companies suggests to understand the combination of interconnected forms and methods of managerial influence on the economic behavior of personnel, which provide a predominantly intensive development of construction enterprises on the basis of reproduction of their human capital in order to stimulate innovation activity and improving the efficiency of construction companies in the long run [4]. With regard to raising the level of energy efficiency of construction companies, today, specialists are distinguished three main directions of implementation of energy saving [2]:

1. Implementation of organizational and economic measures on energy saving. Specialists associate this mainly with the improvement of accounting and regulation of fuel and energy resources, the direction of technological order, the strengthening of discipline of production, the increased role of economic stimulation and elimination of elementary losses.
2. The second direction involves the implementation of technological measures, the content of which is the technological transformation at the expense of rationalization of production, replacement and modernization of obsolete energy and process equipment, improving the quality of energy supply. This part of the work is recognized as a low-cost specialist and can be financed at the expense of the company's own funds.
3. The third direction is related to the introduction of energy saving projects, which include the replacement of technologies and the reconstruction of existing industries, the introduction of less energy-consuming materials, reducing material consumption of products due to innovations, which is associated with significant capital expenditures. Thus, each of these areas of energy saving involves obtaining results from eliminating the causes of inefficient use and losses at each stage of the life cycle of energy resources.

We agree with the aforementioned statements of the authors, but we propose to extend this list taking into account the current trends of «Passive house», «Green Lease», which are more detailed in the monograph [9]:

- system modernization of technological equipment;
- introduction of advanced technologies based on alternative energy sources;
- optimization of systems of valuation and planning of energy costs;
- inventory and regulation of articles of energy costs;
- improvement of methodical provision of estimation of economic efficiency of introduction of energy saving measures and technologies;
- calculation of resource saving;
- in order to stimulate energy saving by the employees of the company, the formation of an effective economic and management mechanism for energy conservation motivation at the construction enterprises;
- widespread use of «green» technologies in construction;
- assistance in providing scientific and technical support for the incorporation of the latest technologies.

In the context of logical and methodological problems of motivation to energy saving in construction companies, we have been conducting research on recommendations for the formation of mechanisms of motivation [4-5]. According to the results of the study, we found that modern scientific literature describes the order of motivation at the enterprise in order to increase its energy efficiency. But at the same time, in our opinion, the proposed recommendations do not contain a number of important elements that provide in the long run an invasive development of the economic and commercial activity of a business entity. In this regard, we propose to consider scheme of implementationthe economic and managerial mechanism of motivation for energy saving, which includes important structural features (Fig.), in our opinion.

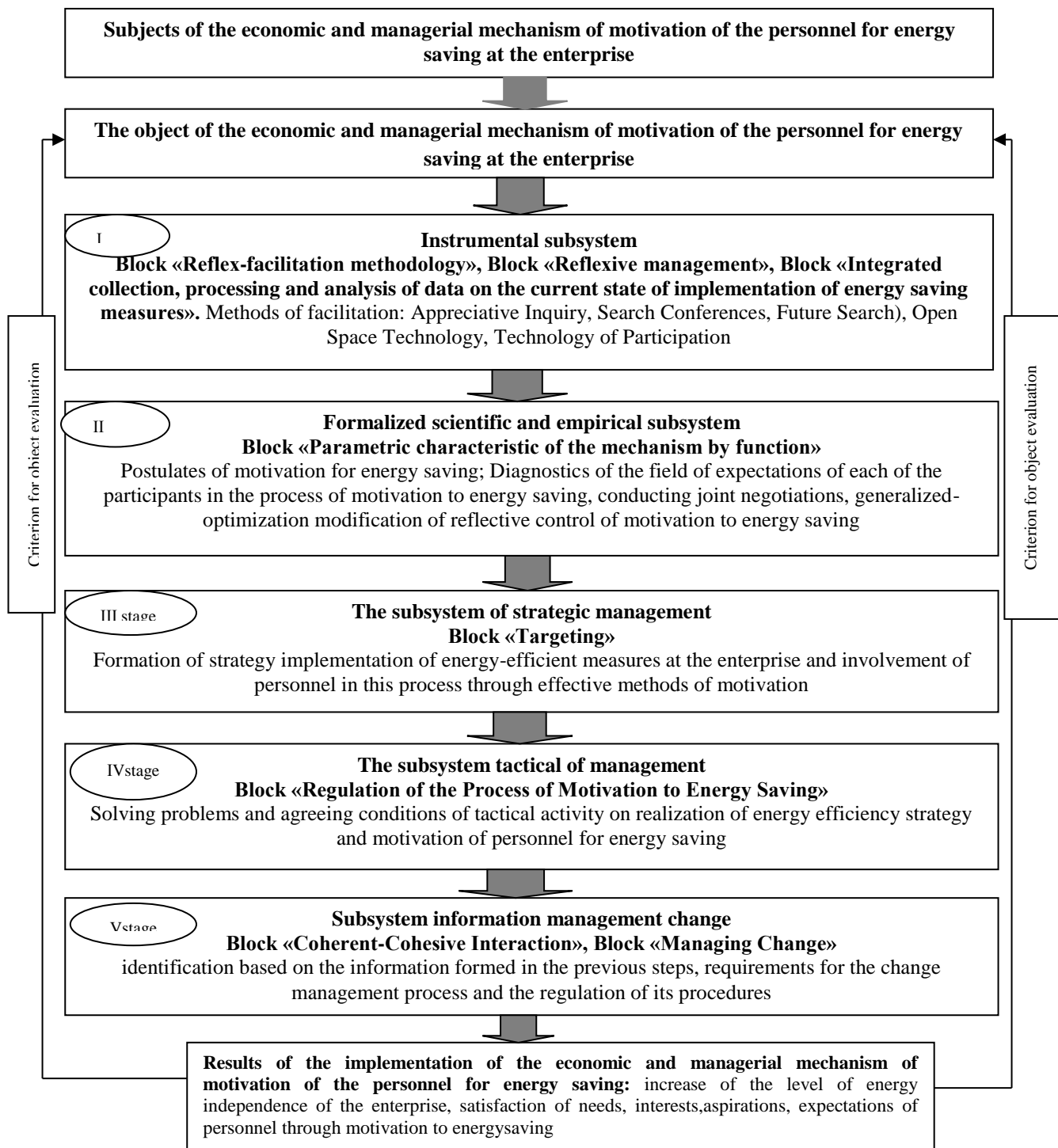


Figure – Scheme of implementation the realization of the economic-managerial mechanism of motivation of personnel for energy saving at the enterprise
(Suggested by the author)

Possibilities of realizing the potential of energy saving within the control system contribute to increase the level of efficiency of its development, which implies in the structure of the scheme of implementation the economic and managerial mechanism of motivation of personnel to energy conservation in the enterprise, based on the functions of its subjects and subject-object interconnections ,

the allocation of subsystems of instrumental, formalized scientific and empirical, information management change, strategic and tactical management, as well as the following blocks: «integrated collection, processing and analysis of data on the current state of implementation of energy saving measures», «facilitation reflection methodology», «reflexive management», «parametric characterization of the mechanism on a functional basis», «regulation of the process of motivation to energy saving», «goal-setting», «coherent-cohesive interaction» and «change management». In the first step of this algorithm, we will form a model of expectations from the strategy of formation and implementation of the economic and managerial mechanism of motivation of personnel to energy saving. Under the model of expectations we will understand the set of interrelated criteria, which enable us to make further managerial decisions about how to influence the object of motivation, requirements to it, to take into account modern management methodologies, namely, facilitation and reflection.

The tool will use the methods of facilitation («Appreciative Inquiry», «Search Conferences», «Future Search», «Open Space Technology», «Technology of Participation» («Technology of Participation»), which more fully take into account the specifics of work with the personnel of the company in the process of motivation to save energy. With this tool, we obtain the following data as outputs: the type of problems at the enterprise, the stage of its life cycle and the level of competitiveness, needs, interests, aspirations, expectations of personnel, the system of legislative acts in the field of energy efficiency, which regulates the activity of the production and economic system, the barriers Theories that arise in the process of motivating staff to save energy.

At the same time, the one-time receipt of the above data is not sufficient for the full solution of the task of organizing and ensuring the process of motivation of staff to save energy. To reduce the risk of ineffective management decisions based on non-relevant information, we will introduce into our formed algorithm a block of complex collection, processing and analysis of data on the current state of implementation of energy-saving measures at the enterprise.

The second stage of the scheme of implementation, performed in parallel with the first, is formalization and coordination of expectations of managers, investors, for whom the economic entity as a structure is an instrument for realizing their own goals. The tools we propose to use at this stage are the preliminary individual diagnostics of the field of expectations of each of the participants in the process of motivation for energy conservation, conducting joint negotiations, reflection and facilitation of the process of generating general expectations from motivation to energy conservation from the company's managers.

The result of this phase is the coordinated expectations of managers who have the same understanding of the goals and directions of energy efficient development, common and accepted by all participants criteria of measurements and subjective assessment of the level of achievement of their personal goals by motivating energy conservation.

Thus, we obtain the basis for the implementation of the third step of our scheme of implementation for developing a strategy for the priority vectors of production and commercial activities of the entity. To develop a strategy for energy efficiency measures, the economic operator uses the following tools: work in groups for the purpose of analyzing the pre-prepared and creating new information about the company's activity, with the obligatory participation of owners and key specialists of the enterprise, in the format of the strategic planning session, based on approved by the strategic planning regulations.

The received results are made in the form of the following documents: the strategy of energy-efficient development of the enterprise, the policy of energy saving, production and sales, financial and economic, personnel policy and information management policy of resources.

The fourth step of our scheme of implementation proposed for a complex organization the process of motivation to energy conservation solves the problem of developing the agreed conditions for tactical activities for the implementation of energy efficient strategies and policies in the directions.

Used tools and results: detail the goals to the level operational management documents, the formation of the structure of the processes of implementation of plans, the definition of the structure of the results of processes, the formation of the organizational structure, the structure of budgets and implementation plans, the rules of the process of motivation to energy conservation, the definition of requirements for the system of ensuring processes - the circulation of documents and IT-security.

The fifth stage of the scheme. At this stage, the most important component of the organization of motivation for energy saving is the identification on the basis of the information formed in previous steps, the requirements for the process of managing change and the regulation of its procedures. The purpose of the change management process is to integrate the results and processes of implementing all of the above steps. This integration will provide operational information communication and the possibility of adequate adjustments between the blocks: «Facilitational-reflexive methodology», «Reflexive management», «Goal-laying», «Regulation of the process of motivation to energy conservation», «Coherent-cohesive interaction», «Management of change».

Consequently, the proposed components of our scheme, implementing the system-complex approach to organizing the process of motivation to energy conservation, ensure the achievement of intermediate goals, positively characterizes the degree of performance of the task to increase the level of energy efficiency of the enterprise, its invariant development, increase the level of efficiency of energy conservation measures; reduction of the energy intensity of the manufactured products.

The scheme of implementation of the economic and managerial mechanism of motivation of personnel for energy saving at the enterprise is characterized by a combination of facilitation methods for managing personnel motivation processes to energy saving, implemented on the basis of the block of «Facilitation and reflexive

methodology» and «reflexive management». The implementation of the strategic and tactical management is provided by the block «regulation of the process of motivation to energy saving», and the «whole retention». Information-analytical interaction of structural components of the mechanism, which creates conditions for realizing the potential and motivation of personnel for energy saving with the help of a block of «coherent-cohesive interaction», «integrated collection, processing and analysis of data on the current state of implementing energy-saving measures at the enterprise» and «change management».

To achieve the goal of establishing the starting point for the scheme for organizing the process of motivation for energy conservation, we have chosen the basic premise that the main customer of the project to assess and decide on the implementation of energy-efficient measures at the enterprise, motivation of staff to save energy may be the management of the enterprise, because the adoption Management decisions with such a level of risk do not fall into the scope of the powers of hired management.

In defining such a basic determinant of the scheme for implementation and evaluation of the economic and managerial mechanism of motivation of personnel for energy saving, we ensure the presence of those responsible for the setting and structure of the objectives of energy efficiency, identification of the criteria of measurement and unambiguous (by matching the interests of owners) assessment of the results obtained by the subject of motivation in the course of implementation. energy saving measures.

Another goal achieved by our proposed scheme is to ensure invariant development of production and commercial activity. Achievement of this goal is achieved by integrating all the structural components of the proposed scheme into the change management subsystem, covering and ensuring the synergy of the activities of all units of the organization of energy-efficient activities and motivation of personnel for energy saving.

Conclusions. Complex system research of the personnel motivation problem based on the newest facilitation and reflection methodology, gave an opportunity to develop an algorithm for the assessment and implementation of the economic and managerial motivation mechanism for energy saving in the enterprise, which will enable the introduction of energy-efficient technologies by the production-economic system taking into account the specifics of personnel motivation.

The structuring of the scheme is represented by the functions of its subjects and the subject-object interrelations, the allocation of subsystems of the instrumental, formalized scientific and empirical, information management change, strategic and tactical management, as well as blocks: «integrated data collection, processing and analysis on the current state of implementation of energy saving measures», «facilitation reflection methodology», «reflexive management», «parametric characterization of the mechanism on the functional basis», «regulation of the process of energy saving», «goal-setting» «coherent-cohesive interaction» and «change management».

The scientific novelty of the research carried out is the development on the basis of an interdisciplinary approach based on the symbiosis of facilitation, reflection and group of imperatives (synergistic, interdisciplinary, equivalence, complementarity of N. Bohr) of the facilitation and reflection methodology of energy saving management at the enterprise, taking into account logical and methodological problems at implementation energy-efficient measures at the enterprise, as well as the specifics of personnel motivation.

References:

1. Voitko S. System analysis of energy security of countries: the aspect of the use of renewable energy. *Economic forum: scientific journal*. Lutsk: LNTU, 2013. Vol. 4/2013. - P. 29-34
2. Ovcharenko D.M. Motivational subsystem in the mechanism of management of economic and technical processes: the current state and prospects of development: energy saving of industrial enterprises. *Integration of economic and technical processes: the current state and prospects of development: collective monograph* / for comp. Ed. Savchuk L. M. - X.: View of «Dios Plus», 2015. P. 374-387.
3. Kulikov P. M., Klymchuk M. M. Management of energy saving in construction enterprises: theory, methodology, practice: Monograph. Ivano-Frankivsk, view«Folio», 2017. 365 p. The bibliographer: P. 327-366.
4. Malikhina O. M. Formation of the basic elements of systemic motivation of human capital of construction enterprises. *Business Inform.* 2014. No. 2. P. 391-396.
5. Rizhakova G. M. Methodological aspects of the formation of the intellectual component of labor potential in the process of the genealogy of a socially oriented economy. *Effective economy*. 2012. No. 6. URL: <http://www.economy.nayka.com.ua>
6. Bens I. Advanced Facilitating Strategies: tools & techniques to master difficult situations San Francisco: Jossey-Bass, 2005b.
7. Carlson P. Basic facilitation. What Can Be Accomplished? What Cannot? *The Skilled Facilitator Fieldbook*. / Ed. By R. Schwarz, A. Davidson, P. Carlson, S. Mckinney. San Francisco: Jossey-Bass, 2005b. P. 115–118.
8. Davidson A. Process Designs. *The Skilled Facilitator Fieldbook* / Ed. By R. Schwarz, A. Davidson, P. Carlson, S. Mckinney. San Francisco: Jossey-Bass, 2005a. P. 107–114.
9. Justice T., Jamieson D.W. The Facilitator's Fieldbook. HRD Press, Inc, 2006.